

UNCLASSIFIED

AD NUMBER

AD367480

CLASSIFICATION CHANGES

TO: unclassified

FROM: confidential

LIMITATION CHANGES

TO:

Approved for public release, distribution
unlimited

FROM:

Distribution: USGO: others to Director,
Defense Atomic Support Agency, Washington,
D. C. 20301.

AUTHORITY

DSWA ltr., 18 Apr 1997; DSWA ltr., 18 Apr
1997

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BUREAU OF SHIPS GROUP TECHNICAL INSPECTION REPORT

Classification (Cancelled) (Changed to **CONFIDENTIAL**)

By Authority of Joint Chiefs of Staff Action of 11 April 1949
By Asst. Dir. AFSA Date 3 May 51

367480

⑥ OPERATIONS CROSSROADS.
U.S.S. BUTTE (APA 68).

TEST BAKER U.S.

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- ⑪ 1947,
- ⑫ 41 p.

Director
Defense Atomic Support Agency
Washington, D. C. 20301

⑭ XRD-124 OPERATION CROSSROADS

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BUREAU OF SHIPS GROUP
TECHNICAL INSPECTION REPORT

Classification (Cancelled) (Changed to **CONFIDENTIAL**)
By Authority of Joint Chiefs of Staff Action of 11 April 1949
By James H. Beveland Date 24 Apr 51
R. C. Hup.

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APPROVED:

F.X. Forest,
Captain, U.S.N.

USS BUTTE (APA68)

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1 JAN 1965

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SECRET

USS BUTTE (APA68)

U.S.S. BUTTE (APA 68)

SHIP CHARACTERISTICS

Building Yard: Consolidated Steel Corp.; Wilmington, California.

Commissioned: 21 November 1944.

HULL

Length Overall: 426 feet 0 inches.

Length on Waterline: 400 feet 0 inches.

Beam (extreme): 58 feet 0 inches.

Depth (molded to upper deck): 37 feet 0 inches.

Drafts at time of test: Fwd. 8 feet 8 inches.

Aft. 18 feet 4 inches.

Limiting displacement: 7,080 tons.

Displacement at time of test: 5,880 tons.

MAIN PROPULSION PLANT

Main Engines: Two sets of Westinghouse steam turbines, directly connected to Westinghouse main generators, Two main shaft motors.

Main Condensers: Two are installed in ship.

Boilers: Two Babcock and Wilcox boilers are installed in ship. 450 psi gauge - 750° F.

Propellers: Two are installed in ship.

Main Shafts: Two are installed in ship.

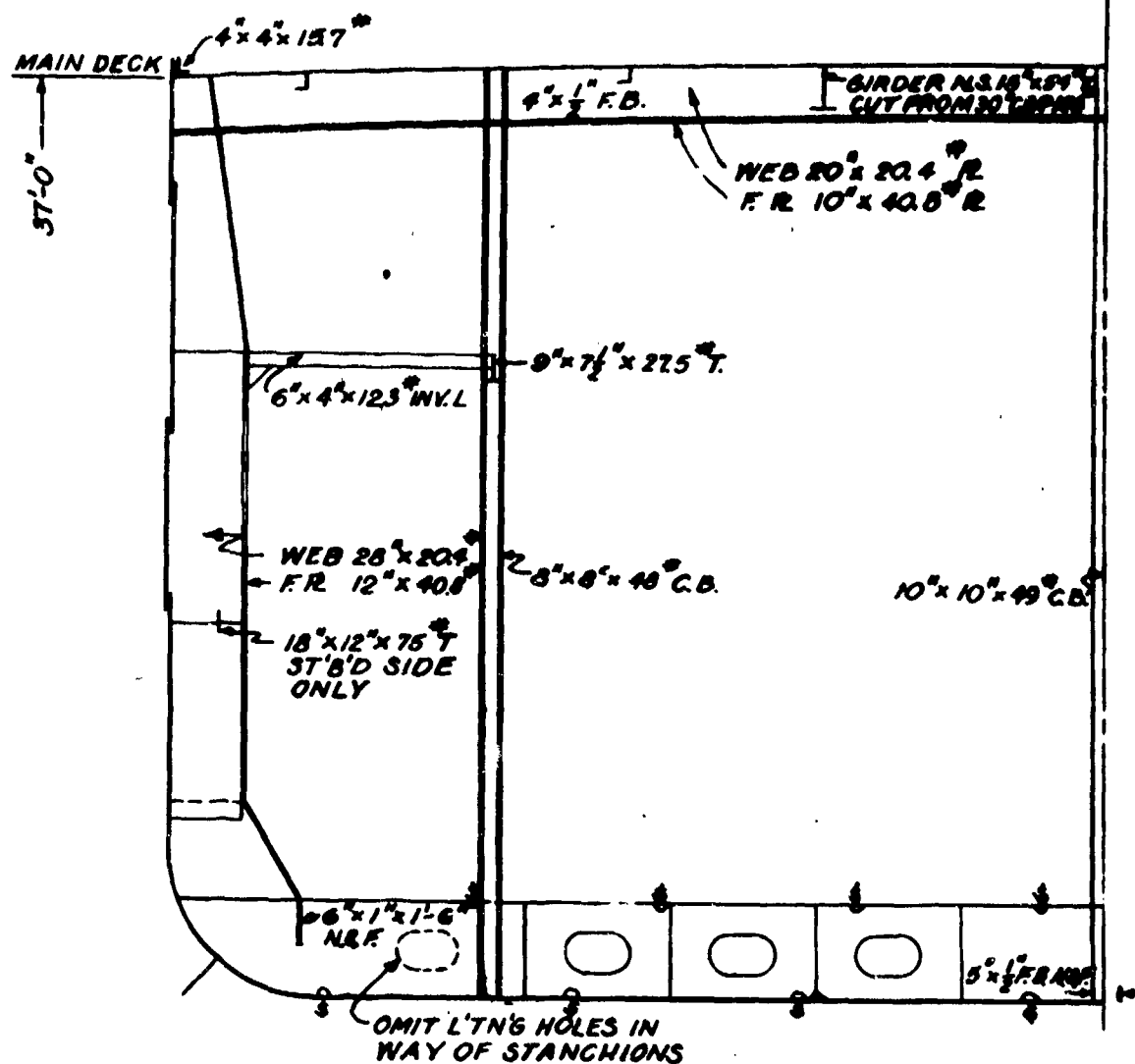
Ships Service Generators: Five are installed in ship.

Three - 250 KW. - 450 V. - A.C.

Two - 100 KW. - 120/240 V. - D.C.

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USS BUTTE (APA68)



FRAME 76 LOOKING AFT
MIDSHIP SECTION

TEST B

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U.S.S. BUTTE (APA 68)

TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I. Target Condition After Test.

(a) Drafts after test; general areas of flooding, sources.

There was no flooding, hence no change in drafts or list.

(b) Structural damage.

HULL

There is no apparent structural damage. A fragment pierced the upper deck at frame 150, starboard.

MACHINERY

No comment.

ELECTRICAL

No structural damage observed which affected electrical equipment.

(c) Other damage.

HULL

Not observed.

MACHINERY

The machinery of this vessel was not damaged by Test B, so far as can be determined by visual inspection.

SECRET

U.S.S. BUTTE (APA68)

ELECTRICAL

No electrical damage was observed as a result of Test B.

II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of heat.

(b) Fires and explosions.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of fires or explosions.

(c) Shock.

HULL

None.

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U.S.S. BUTTE (APA88)

MACHINERY

Leads left in the bearings of one main turbo-generator and one ship's service generator during the test indicate very slight motion of the rotors. This indicates that the BUTTE received a slight underwater shock.

ELECTRICAL

There was no evidence of shock on electrical equipment.

(d) Pressure.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of pressure on electrical equipment.

(e) Effects peculiar to the Atomic Bomb.

HULL

None.

MACHINERY

None, except radioactivity.

ELECTRICAL

There was no effects noted that are considered peculiar to the atomic bomb other than radioactivity.

~~SECRET~~

U.S.S. BUTTE (APA68)

III. Results of Test on Target.

(a) Effect on machinery, electrical, and ship control.

HULL

Not observed.

MACHINERY

None, as far as can be determined by visual inspection. No machinery except the emergency diesel generator and diesel fire pump were operated on this vessel after Test B, because of radiological hazard. Radioactivity was moderately high topside and was present in the machinery spaces in a few isolated spots, all near the shell of the ship, when she was inspected 15 days after the test.

ELECTRICAL

Although operability tests were not made, no evidence could be found that electrical equipment or ship control were affected by this test.

(b) Effect on gunnery and fire control.

HULL

Not observed.

MACHINERY

No comment.

ELECTRICAL

Gunnery and fire control were unaffected, electrically.

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U.S.S. BUTTE (APA68)

(c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

None.

(d) Effect on personnel and habitability.

HULL

None.

MACHINERY

None, except radioactivity.

ELECTRICAL

It is considered the only effect on personnel and habitability would have been that due to radioactivity.

(e) Effect on fighting efficiency.

HULL

None.

MACHINERY

None, except radioactivity. It should be noted that the boats, stowed inboard of the davits, had much higher radioactivity than any

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U.S.S. BUTTE (APA68)

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other place on the ship. In view of the ship's mission as a transport, this might have a serious effect on her fighting efficiency. As all machinery was fully operable, she could presumably have steamed out of the contaminated area without being seriously affected by radioactivity in water around the ship. This, however, would not affect the radioactivity topside, as in the boats, which came from the water thrown upon the vessel by the explosion.

ELECTRICAL

There was no effect on the fighting efficiency of this vessel as a result of test B from electrical failures. It is considered that except for personnel casualties due to radioactivity, this vessel's fighting efficiency would have been unimpaired.

IV. General Summary.

HULL

No comment.

MACHINERY

The BUTTE was outside the effective range of physical damage from the explosion in Test B.

ELECTRICAL

The distance of this vessel from the blast was too great for electrical damage to occur.

HULL

None.

MACHINERY

None.

ELECTRICAL

None.

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U.S.S. BUTTE (APA68)

TECHNICAL INSPECTION REPORT

SECTION I - HULL

GENERAL SUMMARY OF HULL DAMAGE

I. Target Condition After Test.

(a) Drafts after test, general areas of flooding, sources.

There was no flooding, hence no change in drafts or list.

(b) Structural damage.

There is no apparent structural damage. A fragment pierced the upper deck at frame 150, starboard.

(c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

None.

(b) Fires and explosions.

None.

(c) Shock.

None.

(d) Pressure.

None.

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USS BUTTE (APA68)

- (e) Effects peculiar to the atomic bomb.

None.

III. Results of Test on Target.

- (a) Effect on machinery, electrical and ship control.

Not observed.

- (b) Effect on gunnery and fire control.

Not observed.

- (c) Effect on watertight integrity and stability.

None.

- (d) Effect on personnel and habitability.

None.

- (e) Effect on fighting efficiency.

None.

IV. General Summary.

No comment.

V. Recommendations.

None.

VI. Instructions for Loading the Vessel Specified the Following:

Item	Loading
Fuel Oil	95%
Diesel Oil	95%
Ammunition	100%
Potable and reserve feed water	95%
Salt water ballast	None

SECRET

U. S. S. BUTTE (APA68)

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Tests and Observations by Ship's Force" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.

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USS BUTTE (APA68)

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DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

No significant damage. General views of the ship after Test B are on pages 32 and 33.

B. Superstructure.

No damage.

C. Turrets, guns and directors

No damage.

D. Torpedo mounts, depth charge gear.

Not applicable.

E. Weather deck.

Sixteen hatch boards from the forward cargo hatch and ten hatch boards from the after hatch were dislodged and fell through to the main deck. A fragment pierced the upper deck at frame 150, starboard (Photos. 1674-1 and 2; pages 34 and 35).

F. Exterior hull.

No damage.

G. Interior compartments (above waterline).

No damage.

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USS BUTTE (APA68)

- H. Armor decks and miscellaneous armor.
Not applicable.
- I. Interior compartments (below waterline).
No damage.
- J. Underwater hull.
No damage.
- K. Tanks.
No damage.
- L. Flooding.
None.
- M. Ventilation.
No damage.
- N. Ship control.
No damage.
- O. Fire control.
No damage.
- P. Ammunition behavior.
No damage.
- Q. Ammunition handling.
No damage.

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USS BUTTE (APA68)

R. Strength.

No damage.

S. Miscellaneous.

No comment.

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USS BUTTE (APA68)

TECHNICAL INSPECTION REPORT

SECTION II - MACHINERY

GENERAL SUMMARY OF MACHINERY DAMAGE

I. Target Condition after Test.

- (a) Drafts after test; list; general areas of flooding, sources.

No data taken by machinery group.

- (b) Structural damage.

No comment.

- (c) Other damage.

The machinery of this vessel was not damaged by Test B, so far as can be determined by visual inspection.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

No evidence.

- (b) Fires and explosions.

No evidence.

- (c) Shock.

Leads left in the bearings of one main turbo-generator and one ship's service generator during the test indicate very slight motion of the rotors. This indicates that the BUTTE received a slight underwater shock.

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USS BUTTE (APA68)

(d) Pressure.

No evidence.

(e) Effects apparently peculiar to the atom bomb.

None, except radioactivity.

III. Effects of Damage.

(a) Effect on machinery and ship control.

None, as far as can be determined by visual inspection. No machinery except the emergency diesel generator and diesel fire pump were operated on this vessel after Test B, because of radiological hazard. Radioactivity was moderately high topside and was present in the machinery spaces in a few isolated spots, all near the shell of the ship, when she was inspected 15 days after the test.

(b) Effect on gunnery and fire control.

No comment.

(c) Effect on water-tight integrity and stability.

No comment.

(d) Effect on personnel and habitability.

None, except radioactivity.

(e) Total effect on fighting efficiency.

None, except radioactivity. It should be noted that the boats, stowed inboard of the davits, had much higher radioactivity than any other place on the ship. In view of the ship's mission

SECRET

USS BUTTE (APA68)

as a transport this might have a serious effect on her fighting efficiency. As all machinery was fully operable she could presumably have steamed out of the contaminated area without being seriously affected by radioactivity in water around the ship. This, however, would not affect the radioactivity topside, such as in the boats, which came from the water thrown upon the vessel by the explosion.

IV. General Summary.

The BUTTE was outside the effective range of physical damage from the explosion in Test B.

V. Preliminary Recommendations.

None.

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USS BUTTE (APA68)

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DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

1. This vessel sustained no apparent damage to machinery as a result of Test B.

(a) Overall Condition.

The overall condition of the machinery was unchanged by Test B.

(b) Areas of major damage.

There was no area of major damage.

(c) Primary cause of damage in each area of major damage.

Not Applicable.

(d) Effect of target test on overall operation of machinery plant.

The test had no apparent effect on the operation of the machinery plant.

NOTE: Because of radiological hazard no machinery on this vessel except the emergency diesel generator and diesel fire pump has been operated since Test B.

B. Boilers.

No apparent damage.

C. Blowers.

No apparent damage.

D. Fuel Oil Equipment.

No apparent damage.

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USS BUTTE (APA68)

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E. Boiler Feedwater Equipment.

No apparent damage.

F. Main Propulsion Machinery.

No apparent damage. Leads left in the bearings of the forward main turbo-generator indicate a slight vertical motion of the rotor during the test, with a possible maximum of .003 inch.

BEARING LEAD DATA

No. 1 MAIN GENERATOR - FORWARD BEARING

Forward lead	Before Test B	After Test B	Difference
Port	.008	.008	.000
Top	.013	.012	.001
Stb'd	.008	.007	.001
Center lead			
Port	.007	.007	.000
Top	.012	.011	.001
Stb'd	.007	.007	.000
After lead			
Port	.007	.006	.001
Top	.014	.012	.002
Stb'd	.007	.006	.001

No. 1 MAIN GENERATOR - AFTER BEARING

Forward lead			
Port	.008	.007	.001
Top	.013	.010	.003
Stb'd	.007	.008	+ .001

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USS BUTTE (APA68)

G. Reduction Gears.

Not applicable to this vessel.

H. Shafting and Bearings

No apparent damage.

I. Lubrication System.

No apparent damage.

J. Condensers and Air Ejectors.

No apparent damage.

K. Pumps.

No apparent damage.

L. Auxiliary Generators (Turbine and Gears).

No apparent damage. Leads left in the bearings of No. 1 ship's service generator indicate the possibility of very slight motion of the rotor (not over .001 inch) during the test.

BEARING LEAD DATA
No. 1 SHIP'S SERVICE GENERATOR - BEARING BETWEEN TURBINE AND
REDUCTION GEAR

Forward lead	Before Test B	After Test B	Difference
Port	.011	.010	.001
Top	.012	.011	.001
Stb'd	.011	.010	.001
After lead			
Port	.010	.009	.001
Top	.011	.010	.001
Stb'd	.010	.009	.001

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USS BUTTE (APA68)

M. Propellers.

Not inspected. There is no reason to believe that they were damaged.

N. Distilling Plant.

No apparent damage.

O. Refrigeration Plant.

No apparent damage.

P. Winches, Windlasses, and Capstans.

No apparent damage.

Q. Steering Engine.

No apparent damage.

R. Elevators, Ammunition Hoists, Etc..

No apparent damage.

S. Ventilation (Machinery).

No apparent damage.

T. Compressed Air Plant.

No apparent damage. .

U. Diesels (Generators and Boats).

1. The diesel generator and the diesel fire pumps are undamaged. They were operated under service conditions after Test B.

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USS BUTTE (APA68)

2. Boats stored aboard during the test are apparently undamaged mechanically, but have fairly high radioactivity. The highest radioactivity of any locality on this vessel is in these boats.

V. Piping Systems.

No apparent damage.

W. Miscellaneous.

No apparent damage.

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USS BUTTE (APA68)

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TECHNICAL INSPECTION REPORT

SECTION III - ELECTRICAL

GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

Drafts or list were not observed. There was no flooding.

(b) Structural damage.

No structural damage observed which affected electrical equipment.

(c) Other damage.

No electrical damage was observed as a result of Test B.

II. Forces Evidenced and Effects Noted.

(a) Heat.

There was no evidence of heat.

(b) Fires and explosions.

There was no evidence of fires or explosions.

(c) Shock.

There was no evidence of shock on electrical equipment.

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USS BUTTE (APA68)

(d) Pressure.

There was no evidence of pressure on electrical equipment.

(e) Any effects apparently peculiar to the atom bomb.

There was no effects noted that are considered peculiar to the atomic bomb other than radioactivity.

III. Effects of Damage.

(a) Effect on propulsion and ship control.

Although operability tests were not made, no evidence could be found that electrical equipment or ship control were affected by this test.

(b) Effect on gunnery and fire control.

Gunnery and fire control were unaffected, electrically.

(c) Effect on water-tight integrity and stability.

None.

(d) Effect on personnel and habitability.

It is considered the only effect on personnel and habitability would have been that due to radioactivity.

(e) Total effect on fighting efficiency.

There was no effect on the fighting efficiency of this vessel as a result of Test B from electrical failures. It is considered that except for personnel casualties due to radioactivity, this vessel's fighting efficiency would have been unimpaired.

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USS BUTTE (APA68)

IV. General Summary of Observers' Impressions and Conclusions.

The distance of this vessel from the blast was too great for electrical damage to occur.

V. Any Preliminary General or Specific Recommendations of the Inspecting Group.

None.

SECRET

USS BUTTE (APA68)

DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

This vessel received no damage to electrical equipment as a result of Test B.

(b) Areas of major damage.

None.

(c) Primary causes of damage in each area of major damage.

There was no electrical damage.

(d) Effect of target test on overall operation of electric plant.

Although operability tests were not conducted, the overall operation of the electric plant was apparently unaffected by this test.

(e) Types of equipment most affected.

None.

B. Electric Propulsion Rotating Equipment.

No damage.

C. Electric Propulsion Control Equipment.

No damage.

D. Generators - Ships Service.

No damage.

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USS BUTTE (APA68)

E. Generators - Emergency.

No damage.

F. Switchboards, Distribution and Transfer Panels.

No damage.

G. Wiring, Wiring Equipment and Wireways.

No damage.

H. Transformers.

No damage.

I. Submarine Propelling Batteries.

Not Applicable.

J. Portable Batteries.

No damage.

K. Motors, Motor Generator Sets and Motor Controllers.

No damage.

L. Lighting Equipment.

No damage.

M. Searchlights.

No damage.

N. Degaussing Equipment.

No damage.

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USS BUTTE (APA68)

O. Gyro Compass Equipment.

No damage.

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

Not Applicable.

R. Announcing Systems.

No damage.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

U. I.C. and A.C.O. Switchboards.

No damage.

V. F.C. Switchboard.

No damage.

W. Miscellaneous.

No comment.

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USS BUTTE (APA68)

SECTION IV

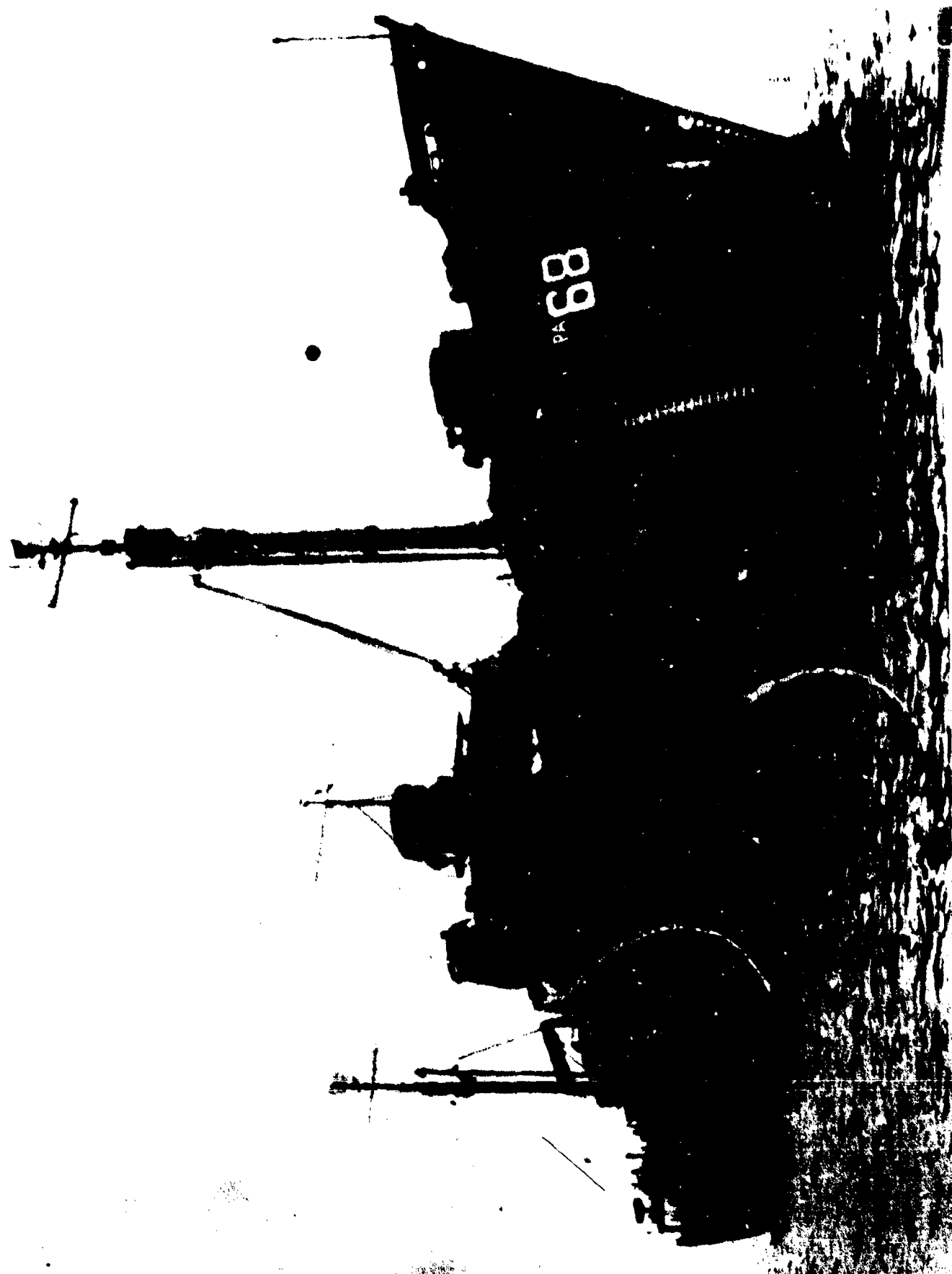
PHOTOGRAPHS

TEST BAKER

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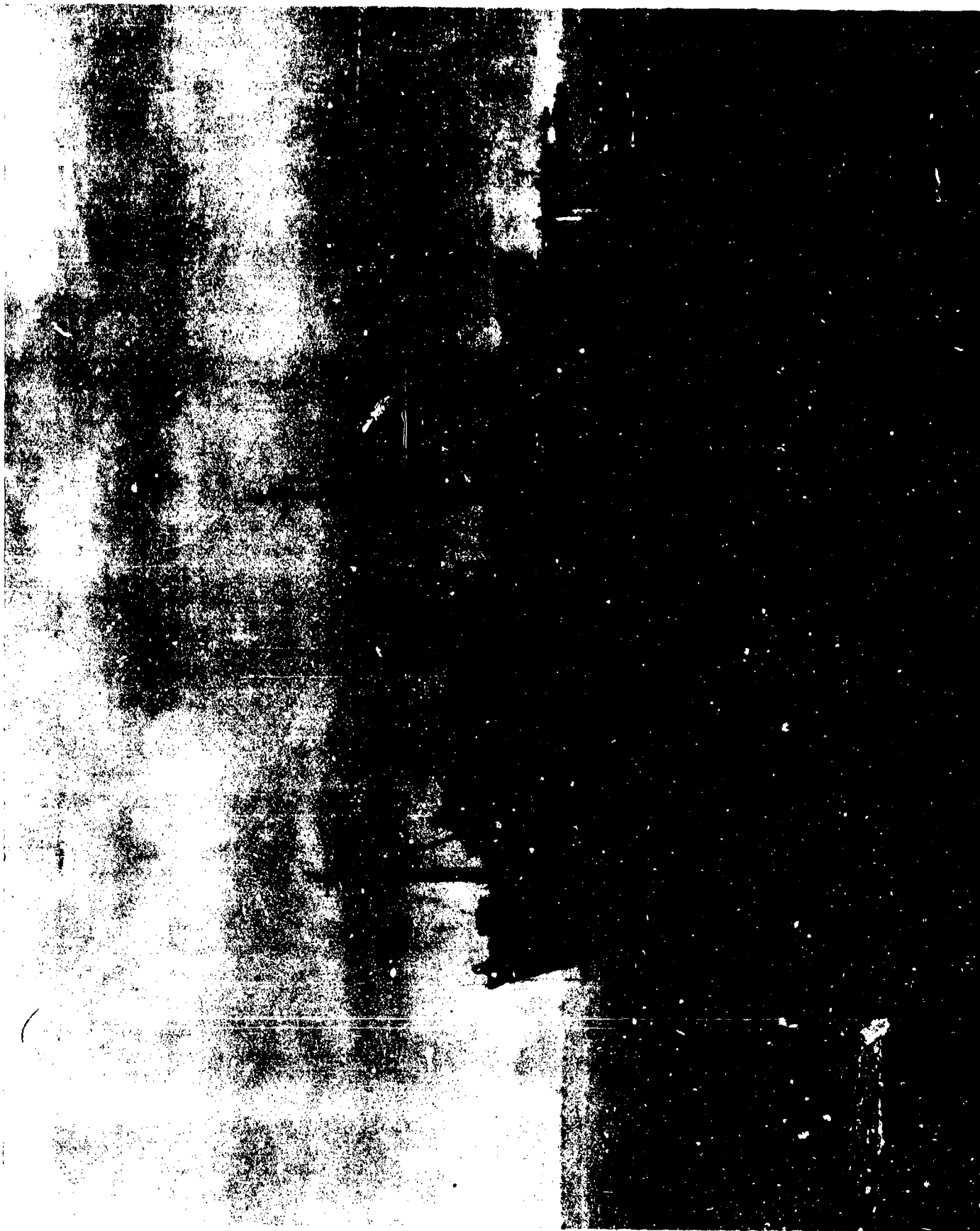
AB-CR-227-283-145. Starboard bow after Test B.

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USS BUTTE (APA68)

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AB-CR-277-283-149. Port quarter after Test B.

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AB-CR-81-1674-1. Fragment on upper deck and hole in deck.

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AB-CR-81-1674-2. Fragment hole in upper deck.

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APPENDIX

SHIPS MEASUREMENT DIAGRAM

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USS BUTTE (APA68)

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Appendix

Ship Measurement Data

Deflection scratch gages were installed in the after machinery space and beneath the upper deck to record relative movement of structural members. Gage locations and headings are recorded on pages **38** and **39** .

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USS BUTTE (APA68)

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SHIP U.S.S. BUTTE (APA68)										TEST B	
DECK DEFLECTION GAGES											
LOCATION			MAXIMUM COMP.	MAXIMUM EXP.	PERMANENT DISTANCE	SET		REMARKS			
FR. NO.	DECK	DIST. OFF &				EXP. / COMP.					
22 1/2	Main	Center-- line.	None	None	None	None		None			
48	"	Stbd. 9'7"	0-0-1/2	0-0-1/16	"	"		"			
48	"	Port 9'7"	None	None	"	"		"			
48	"	Stbd. 20'7"	0-0-9/16	0-0-1/4	"	"		"			
48	"	Port 20'2"	0-0-9/16	0-0-3/16	"	"		"			
129	"	Stbd 14'2"	0-0-3/32	None	"	"		"			

TEST B

SHIP U.S.S. BUTTE (APA68)

TEST B

SHIP U.S.S. BUTTE (APA-68)

[illegible]

USS BUTTE (APA-68)

APPENDIX

COMMANDING OFFICERS REPORT

TEST BAKER

SECRET

USS BUTTE (APA68)

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COMMANDING OFFICERS REPORT

REPORT # 11

SECTION - I

There was no apparent damage to the USS BUTTE (APA-68)
as a result of the BAKER Test other than radioactive contamination.

SECRET

USS BUTTE (APA-68)

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By [Signature] Date 2-8-51
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By Peter J. H. [unclear] date 2-8-95

01st Lt. AFSW

RESTRICTED DATA
EXCLUDED FROM 1944

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Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, Virginia 22310-3398

TRC

18 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

✓AD-366588 4	XRD-203-Section 12✓
AD-366589✓	XRD-200-Section 9
AD-366590✓	XRD-204-Section 13
AD-366591✓	XRD-183
✓AD-366586 X	XRD-201-Section 10✓
✓AD-367487 4	XRD-131-Volume 2✓
✓AD-367516 4	XRD- 3 143✓
✓AD-367493 4	XRD-142✓
AD-801410L✓	XRD-138
AD-376831L✓	XRD-83
AD-366759✓	XRD-80
✓AD-376830L 4	XRD-79✓
✓AD-376828L 4	XRD-76✓
✓AD-367464 X	XRD-106✓
AD-801404L✓	XRD-105-Volume 1
✓AD-367459 X	XRD-100✓

TRC

18 April 1997

Subject: Declassification of Reports

✓AD-367517✗	XRD-141 ✓
AD-366762✓	XRD-84
AD-366760✓	XRD-81
AD-366761✓	XRD-82
AD-367501✓	XRD-158-Volume 1
AD-367507L ✓	XRD-152-Volume 4
✓AD-367495 ✗	XRD-184 ✓
✓AD-367485 ✗	XRD-129 ✓
✓AD-367484 ✗	XRD-128 ✓
✓AD-367483 ✗	XRD-127 ✓
✓AD-367482✗	XRD-126 ✓
AD-367488 ✓	XRD-132
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AD-367497✗	XRD-162 ✓

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18 April 1997

Subject: Declassification of Reports

AD-801406L ✓ XRD-114.

In addition, all of the cited reports are now **approved for public release; distribution statement "A" now applies.**

Arldith Jarrett
ARDITH JARRETT
Chief, Technical Resource Center